

PATENT COOPERATION TREATY

PCT

REC'D 28 DEC 2005

WIPO


PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 63361A	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US2004/025924	International filing date (day/month/year) 11.08.2004	Priority date (day/month/year) 18.08.2003
International Patent Classification (IPC) or both national classification and IPC H01B3/00, H01B3/18		
Applicant DOW GLOBAL TECHNOLOGIES INC. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 18.06.2005	Date of completion of this report 23.12.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Rousseau, F Telephone No. +49 89 2399-8297



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US2004/025924

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-12 as originally filed

Claims, Numbers

10(part) as originally filed

1-9, 10(part) filed with telefax on 18.06.2005

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US2004/025924**

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	8,9
	No: Claims	1-7,10
Inventive step (IS)	Yes: Claims	
	No: Claims	8,9
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US2004/025924

1. Provided that the solid polymeric structure is defined as to be uniform (see page 8, lines 1-2 of the application as filed), the amended documents would not go beyond the disclosure of the application as filed (Article 34(2)(b) PCT). Amended claim 1 would be based on claim 1, page 2, lines 23-25, page 1, lines 1-2 and page 8, lines 1-2 of the application as originally filed. Dependent claims 2 to 8 would also be based on original claims 2 to 8 in combination with the above cited passages. Amended claim 9 would be based on claim 9, page 2, lines 23-25 and page 1, lines 1-2 of the application as originally filed. Amended claim 10 would be based on claim 10, page 2, lines 23-25 and page 8, lines 1-2 of the application as originally filed.
2. A foamed structure is also, in principle, a solid structure. Therefore, the wording "a solid polymeric structure" contained in present claims 1 and 10 also encompasses a foamed structure. Thus, EP-A-1 295 910 (D1) which discloses a telecommunication cable comprising a plurality of electrical conductors, wherein each conductor is surrounded by a layer of insulation comprising a coupled propylene polymer (see claims 1, 2, 6, paragraphs [0018] and [0027]), is considered to anticipate the present claims 1 to 7 and 10 (Article 33(2) PCT). In this respect the feature "thin" introduced into claims 1 and 10 is not considered to represent a distinguishing feature over D1. However, according to page 8, lines 1-5 of the application the Applicant means in fact a uniform non foamed solid polymeric structure. Provided the polymeric structure is defined as non foamed, claims 1 to 10 would appear to be novel over D1.
3. Cables insulated with coupled propylene polymers (in particular impact copolymers), using poly(sulphonyl azide) as coupling agent are known from WO03/040229 (D2) (see page 4, lines 28-37, passage from page 16, line 27 to page 17, line 23, page 24, lines 5-8, examples 20-24 and claims 48 to 51). Hence, cables insulated with a coupled propylene as defined in present claims 1 to 7 and 10 are known from D2. The use of a plurality of electrical conductors (as defined in present claim 1 or 10), of an hydrocarbon grease to fill the interstices between the insulated conductors (as defined in present claim 8) and of a multilayer insulation comprising one layer of solid insulation and one layer of foamed insulation (as defined in claim 9) appear to be conventional in the art (see in particular EPA-951 022 (D3)). Hence, if the skilled person merely wanted to provide further cables, such as telecommunication cables, it would have been obvious for him starting from D2 to arrive at the subject-matter of present claims 1 to 10 (Article 33(3) PCT).

INTERNATIONAL PRELIMINARY

International application No. PCT/US2004/025924

EXAMINATION REPORT - SEPARATE SHEET

4. The subject-matter of present claims 1 to 7 and 10 appears to be disclosed in WO2004/025670 (D4) (see in particular claims 1-6, passage from page 8, line 30 to page 9, line 21, passage from page 3, line 29 to page 6, line 7, examples 6 to 12 and Figure 1).
5. The subject-matter of claims 1 to 10 is industrially applicable (Article 33(4) PCT).

What is claimed is:

1. A telecommunications cable comprising a plurality of electrical conductors, each conductor being surrounded by a thin wall layer of insulation being a solid polymeric structure and comprising a coupled propylene polymer.
2. The cable of Claim 1 wherein the coupling modification incorporated long chain branches into branching sites of the propylene polymer.
3. The cable of Claim 1 wherein the propylene polymer structure was subjected to vis-cracking.
4. The cable of Claim 1 wherein the coupled propylene polymer is selected from the group consisting of coupled impact modified propylene polymers and coupled impact propylene copolymers.
5. The cable of Claim 1 wherein the coupled propylene polymer further having a melt strength at least 10% greater than the melt strength of the corresponding uncoupled propylene polymer.
6. The cable of Claim 1 wherein the coupled propylene polymer further having a normalized relaxation spectrum index (nRSI) at least 10% greater than the nRSI of the corresponding uncoupled propylene polymer.
7. The cable of Claim 1 wherein the coupled propylene polymer further having a melt flow rate (MFR) at least 10% less than the MFR of the corresponding uncoupled propylene polymer.
8. The cable of Claim 1 wherein interstices are between the insulated conductors and contain hydrocarbon cable filler grease.
9. A telecommunications cable comprising a plurality of electrical conductors, each conductor being surrounded by a multilayer, thin wall insulation structure comprising at least one layer of solid insulation and at least one layer of foamed insulation, wherein the solid insulation layer comprises a coupled propylene polymer.
10. A telecommunications cable comprising a plurality of electrical conductors, each conductor being surrounded by a thin wall layer of insulation being a solid polymeric structure and comprising a coupled propylene polymer, having (a) long chain branches incorporated into branching sites of the propylene polymer structure, (b) a melt strength at least 10% greater than the melt strength of the corresponding uncoupled propylene polymer, (c) a normalized relaxation spectrum index (nRSI) at least 10% greater than the nRSI of the